

REMARKS

The rejections of:

Claims 1-6, 12 and 14 under 35 U.S.C. § 102(e) as anticipated by US 2003/0205552

(Hanford et al);

Claim 7 under 35 U.S.C. § 103(a) as unpatentable over Hanford et al in view of US 6,660,648 (Galambos et al); and

Claim 15 under 35 U.S.C. § 103(a) as unpatentable over Hanford et al in view of US 5,651,900 (Keller et al),

are respectfully traversed.

As previously discussed, Hanford et al is from the same patent family as WO 01/36321, which is discussed at pages 4-6 of the specification herein. For purposes of brevity only, Applicants will not repeat the discussion.

In the present Office Action, the Examiner finds that layer (28) of Hanford et al reads on layer C herein, and that features which Applicants rely on, such as forming holes “only within layer B,” are not recited in the claims.

Applicants reply as follows.

Since layer B of Claim 1 can be made of several strata, each formed of a micro-machinable material, and that layers B and C are directly deposited, respectively, on plate A and on layer B, then arguably, plate A of Claim 1 corresponds to substrate 20 of Hanford et al, and layer B of Claim 1 corresponds to the layer formed by etch stop layer 22 + base layer 24 of Hanford et al.

Assuming the above, then:

1. step b) of Claim 1, i.e., forming **through** holes **within layer B**, does not exist in Hanford et al, since in Hanford et al, the holes cannot be considered as through holes since they **only partially** penetrate etch stop layer 22 (see Figure 3 and [0048]);

2. as a result, the feature recited in step b) according to which each hole has a wall made of the material(s) of layer B and a **bottom made of the material of plate A** does not exist in Hanford et al, since in Hanford et al, the bottom of the holes is made of the material of etch layer 22; it cannot be made of the material of substrate 20;

3. step c) of Claim 1, i.e., forming a layer C directly on layer B **which closely hugs the wall and the bottom of the holes**, does not exist in Hanford et al, since in Hanford et al, sacrificial base layer 28 does not hug the bottom of the holes (see Figure 4);

4. step d) of Claim 1, i.e., **completely eliminating layer C from the underlying face of layer B** and, at the centre of each hole, **from the underlying face of plate A** while leaving a residue of layer C on the wall of the holes, does not exist in Hanford et al, since in Hanford et al, sacrificial base layer 28 is **only partially removed** from the underlying face of base layer 24 so as to create anchor points in said sacrificial base layer 28 (see Figure 5 and [0052]). Furthermore, sacrificial base layer 28 cannot be removed from the underlying face of substrate 20 since it is not in contact with said substrate;

5. the feature recited in step d) according to which the residue of layer C delimits a pore the wall of which is made of the material(s) of layer C and **the bottom of which is made of the material of plate A** does not exist in Hanford et al, since in Hanford et al, the bottom of the holes, after sacrificial base layer 28 has been partially removed, is made of the material of etch layer 22. The bottom of the holes cannot be made of the material of substrate 20 (see Figure 5).

Thus, three of the five steps of the method of Claim 1 cannot be found in Hanford et al. Furthermore, in Hanford et al, the bottom of the holes is never made of the material of substrate 20. In the present invention, on the other hand, the bottom of the holes/pores is made of the material of plate A.

The above was based on an assumption that plate A and layer B of Claim 1 correspond to substrate 20, and the layer formed by etch stop layer 22 + base layer 24, of Hanford et al, respectively. If, on the other hand, it is considered more logical that layer C of Claim 1 corresponds to plug layer 32 of Hanford et al, since these layers have in common that they be deposited so as to fill the holes and then be planarized, then arguably, and logically, plate A of Claim 1 corresponds to substrate 20 of Hanford et al, and layer B of Claim 1 corresponds to the layer formed by etch stop layer 22 + base layer 24 + sacrificial base layer 28 of Hanford et al.

Assuming the above, then:

1. step b) of Claim 1, i.e., forming **through** holes within layer B, does not exist in Hanford et al, since in Hanford et al, the holes cannot be considered as passing through sacrificial base layer 28 since they are made before depositing this layer and they cannot be considered as passing through etch stop layer 22 since they **only partially** penetrate this layer;
2. as previously stated, the feature recited in step b) according to which each hole has a wall made of the material(s) of layer B and a bottom made of the material of plate A does not exist in Hanford et al since the bottom of the holes is made of the material of etch layer 22, not the material of substrate 20;
3. step d) of Claim 1, i.e., completely eliminating layer C from the underlying surface of layer B and, at the centre of each hole, from the underlying face of plate A while leaving a residue of layer C on the wall of said hole(s), said residue delimiting a pore . . . , does not exist in Hanford et al, since in Hanford et al, plug layer 32 is planarized, which means that it is removed together with the residues of sacrificial base layer 28 from the underlying face of base layer 24, but is not removed from the inside of the holes (see Figure 6). Accordingly, no pore is created during the step of planarizing plug layer 32; in fact, in

Hanford et al, pores are created four steps later (i.e. at step 70 on Figure 10) after having deposited protective layers on both sides of the wafer, etched the backside protective layer and the underlying substrate 20, selectively released said protective layers and etched sacrificial base layer 28 together with etch stop layer 22;

4. the feature recited in step d) according to which the pores delimited by the residue of layer C have a wall made of the material(s) of layer C and a bottom made of the material of plate A does not exist in Hanford et al for the reasons already explained.

Thus, however the present invention and Hanford et al are compared, their respective methods are clearly different, nor can it be reasonably argued that Hanford et al anticipates or otherwise renders obvious the presently-claimed invention.

It is reiterated from the previous response that the method of the invention provides particular advantages, namely:

allowing one to obtain a biomimetic membrane with less steps than the method of Hanford et al, which means that it is much easier to work and much more economically interesting; and

allowing one to obtain a biomimetic membrane in which the wall of each hole is made by a single material, namely the material of layer C, whereas the wall of the holes of the membrane obtained in Hanford et al (which is partially formed by base layer 24 and partially formed plug layer 32) may be composed of two different materials when, for example, base layer 24 is made of a low stress silicon nitride, whereas plug layer 32 is made of polysilicon. In such a case, the membrane is unable to be used as an experimental model in studies concerning biological membranes.

Neither Galambos et al nor Keller et al rectify any of the above-discussed deficiencies in Hanford et al.

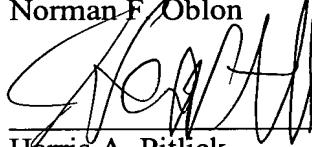
For all the above reasons, it is respectfully requested that the rejections over prior art be withdrawn.

Applicants gratefully acknowledge the Examiner's indication of allowability of Claims 8-11, 13 and 16. Nevertheless, Applicants respectfully submit that all of the presently-active claims are now in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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